

NOTES ON MEXICAN ACTINOTE (NYMPHALIDAE: ACRAEINAE)
AND THEIR RELATIVES, WITH DESCRIPTION OF
A NEW SUBSPECIES

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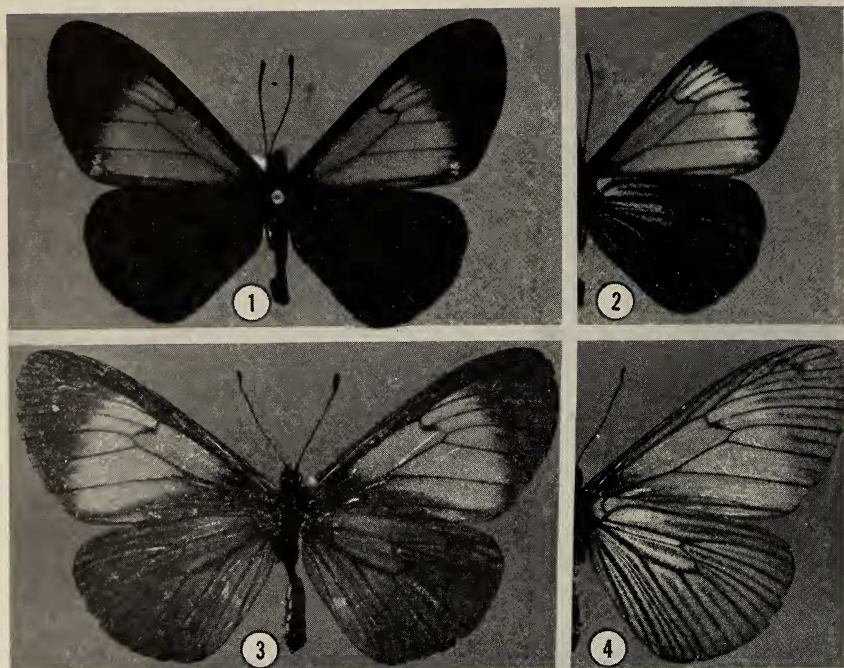
ABSTRACT. The application of names described for South American species to their Central American, and especially Mexican, counterparts has led to great confusion in the literature. *Actinote stratonice oaxaca* is described from Oaxaca, Mexico; this insect had been reported previously as the nominate subspecies. Three species of the *Actinote thalia* group, *A. calderoni*, *lapitha* and *thalia* are illustrated, redescribed and discussed. A key for the separation of the three species is provided. The first two species are recorded from Mexico—*calderoni* had been previously misidentified as *lapitha* from there. One name, *A. lapitha zilchi* Franz and Schröder, is synonymized to *calderoni*.

Collecting in Mexico over the past forty years has yielded many butterfly species that were previously unknown from there, not a few of which were totally unexpected. These unexpected taxa have created many problems, usually for one of two reasons: 1) the butterfly was an already described Central or South American species and was described as new from Mexico because of a lack of comparative material or an ignorance of the pertinent literature; or 2) many species (especially those figured and described in *Seitz*) incorrectly have been ascribed to the Mexican fauna, again because of a lack of adequate comparative material. Both situations are well demonstrated in the Nymphalidae: Acraeinae. The Hoffmann (1940) catalog lists only four species of this subfamily within the borders of Mexico, but recent collecting has uncovered one that has been misidentified in collections and in correspondence—the one with which the first-mentioned species had been confused and an undescribed subspecies of a well-known South American insect. In the hope of unravelling the confusion in this small subfamily (within the Mexican borders), we offer these notes.

***Actinote stratonice oaxaca* J. Miller and L. Miller, new subspecies**

Figs. 1-6

Male. Head, thorax and appendages black; abdomen black with a reddish-brown midsternal line. **Upper surface of wings** similar to that of the nominate subspecies, but paler, and with the following differences: forewing totally black anteriorly of cell (partially reddened in other subspecies); dark marking at end of forewing cell much smaller than in other subspecies and black area at base of forewing cell and along inner margin more restricted than in other populations. **Under surface pattern** also paler than in *s. stratonice* with forewing differences as noted for upper surface



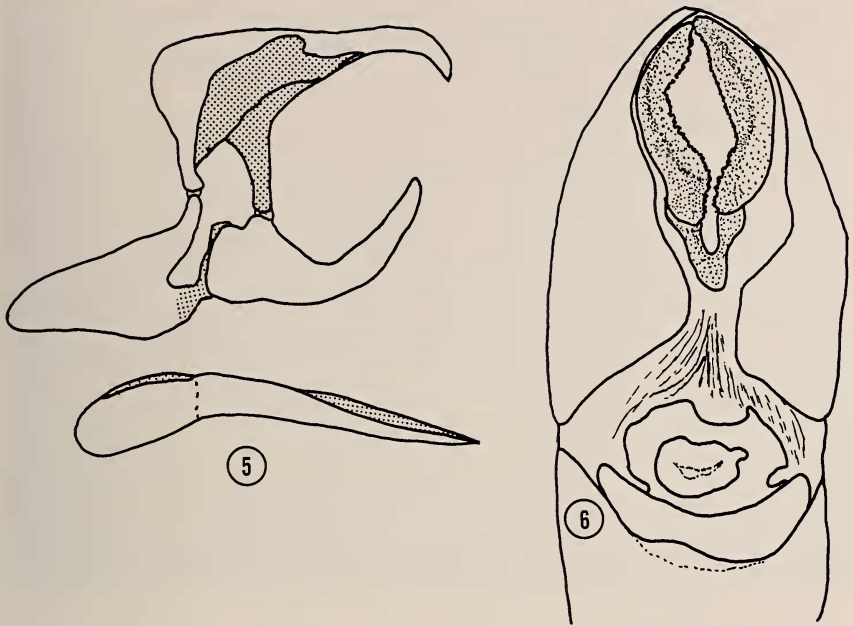
Figs. 1-4. *Actinote stratonice oxaca* J. Miller and L. Miller, new subspecies. 1-2, Holotype ♂, upper (1) and under (2) surfaces; MEXICO: OAXACA: Candelaria Loxicha, 550 m. 3-4, Paratype ♀, upper (3) and under (4) surfaces; same locality. Both specimens in Allyn Museum of Entomology.

and in addition the pale orange patches in the forewing cell area darkened basad, blending to tawny-yellow distad; black areas admixed with pale yellow scales, especially in base hindwing. ♂ **genitalia** as illustrated, differing from those of other *stratonice* in only minor respects. **Length of forewing** of Holotype ♂ 24.4 mm, those of eleven of the ♂ Paratypes range from 26 to 31 mm.

Female. Differs from the ♀ of nominate *stratonice* in the same manner as does the ♂, but additionally the basal black areas of the forewing encompass the proximal third of the cell and below it along the inner margin, and all of the black areas below are completely suffused with yellow scaling. One ♀ Paratype has a hindwing supernumerary vein off Rs on the right side. ♀ **genitalia** as illustrated and comparing well with those of other subspecies. **Lengths of forewings** of 12 ♀ Paratypes range from 28.2 to 38 mm.

Specimens examined. Described from 25 specimens, 13 males and 12 females, from the state of Oaxaca, Mexico.

Types. HOLOTYPE ♂: MEXICO: OAXACA: Candelaria Loxicha, 550 m, 8.ix.1969 (E. C. Welling). PARATYPES: all MEXICO: OAXACA: same locality as Holotype, 1 ♂ 15.xi.1967, 1 ♂ 15.ix.1968, 1 ♀ 21.vii.1970, 1 ♂ 1 ♀ 27.viii.1970, 1 ♀ 21.vii.1973 (all E. C. Welling M.); El Portillo del Rayo, Candelaria Loxicha, 1 ♂ 3 ♀ 17.xi.1967 (all E. C. Welling M.), 6 ♂ 4 ♀ 18.vii.1976 (all de la Maza family); Rio Molina, Mpio. Suchistepce, 2200 m., 1 ♀ 10.x.1967 (E. C. Welling M.); San Jose Pacifico, Mpio. Rio Hondo, 2400 m., 1 ♂ 9.x.1967 (E. C. Welling M.); Puente



Figs. 5-6. *Actinote stratonice oaxaca* J. Miller and L. Miller, new subspecies. 5, ♂ genitalia of Paratype; MEXICO: OAXACA: Candelaria Loxicha; preparation M-3630 (Jacqueline Y. Miller). 6, ♀ genitalia of Paratype; same locality; preparation M-3602 (Jacqueline Y. Miller).

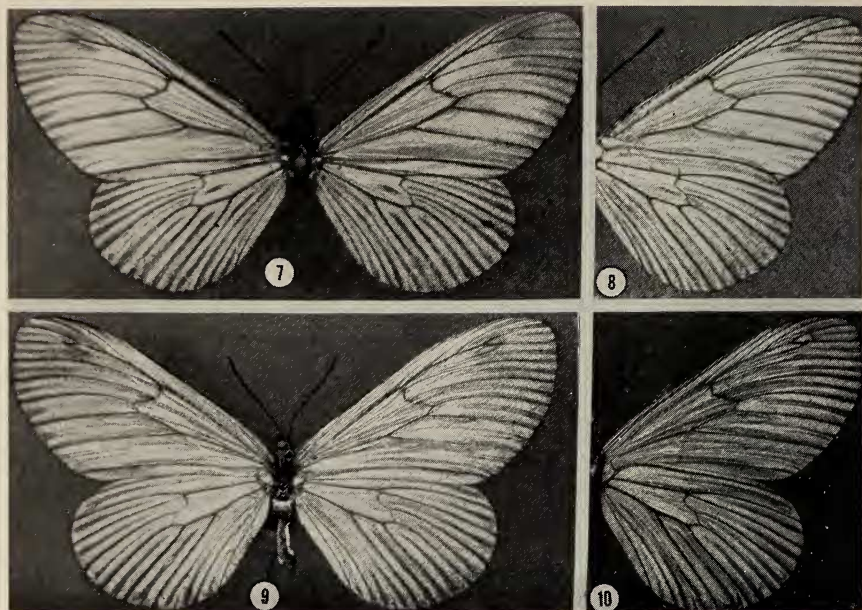
del Guajolote, Jalatengi, 1 ♀ 21.iii.1975 (E. Fernandez), 1 ♂ 21.xi.1975 (de la Maza family); Dos de Mayo, 1 ♂ 18.v.1976 (de la Maza family).

Disposition of type series: Holotype ♂, two ♂ and four ♀ Paratypes in the collection of the Allyn Museum of Entomology; two ♂ and three ♀ Paratypes in the collection of E. C. Welling M. and eight ♂ and five ♀ Paratypes in the de la Maza collection.

Remarks. The subspecific name refers to the state from whence the new subspecies came.

A. stratonice is recorded in Seitz from the Sierra Madre de Santa Marta of Colombia and southward through the mountains of Venezuela and into Ecuador. The present subspecies was first recorded in the literature from Mexico by de la Maza R. and de la Maza E. (1975), but at the time they did not recognize it as a separate subspecies.

The subspecies *oaxaca* is characterized by its overall dull coloration and by the suffusion of the under surface with pale yellow scales. In none of the other subspecies of *stratonice* do these characters appear. The disjunct distribution of *stratonice*, with a Mexican subspecies widely separated from its nearest relatives, is indeed intriguing.



Figs. 7-10. *Actinote calderoni* Schaus. 7-8, ♂, upper (7) and under (8) surfaces; MEXICO: CHIAPAS: Mapastepec. 9-10, ♀, upper (9) and under (10) surfaces; same locality. Both specimens in Allyn Museum of Entomology.

The Identity of the Mexican *Actinote thalia* Group Species

Pale Mexican specimens of *thalia* group *Actinote* in most collections usually have been identified as *A. lapitha* (Staudinger). Comparison of most Mexican material with Staudinger's description and subsequent literature citations suggest that these specimens could not be true *lapitha*. Accordingly, we searched museum and private collections and the literature for documented material that might shed light on the correct name for the Mexican insects. The results were surprising, and to avoid future confusion the following redescriptions are offered to aid in the identification of these butterflies.

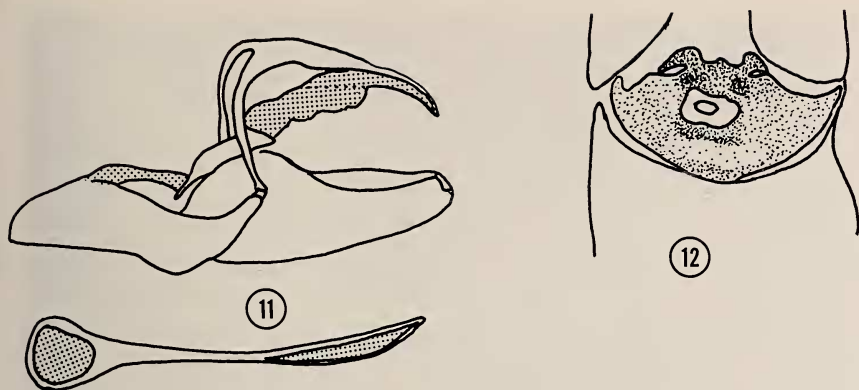
Actinote calderoni Schaus, 1920

Figs. 7-12

Actinote calderoni Schaus, 1920: 434 (TL—Anteos, El Salvador).

= *Actinote lapitha zilchi* Franz and Schröder, 1954: 80; fig. 2 (TL—Km. 30, Sonsonate Rd., La Libertad, El Salvador). [New Synonymy.]

Male. Head, thorax and first two abdominal segments dark brown covered with a few fuscous and tawny dorsal hairs; remaining abdominal segments naked



Figs. 11-12. *Actinote calderoni* Schaus. 11, ♂ genitalia; MEXICO: CHIAPAS: Mapastepec; preparation M-3633 (Jacqueline Y. Miller). 12, ♀ sterigma; same locality; preparation M-3601 (Jacqueline Y. Miller).

dorsad; thorax and first two abdominal segments covered with a few tawny ventral scales; last abdominal segments ventrally naked; pleural line buff. Palpi tawny with a few black scales along inner surface only. Antennae and legs black.

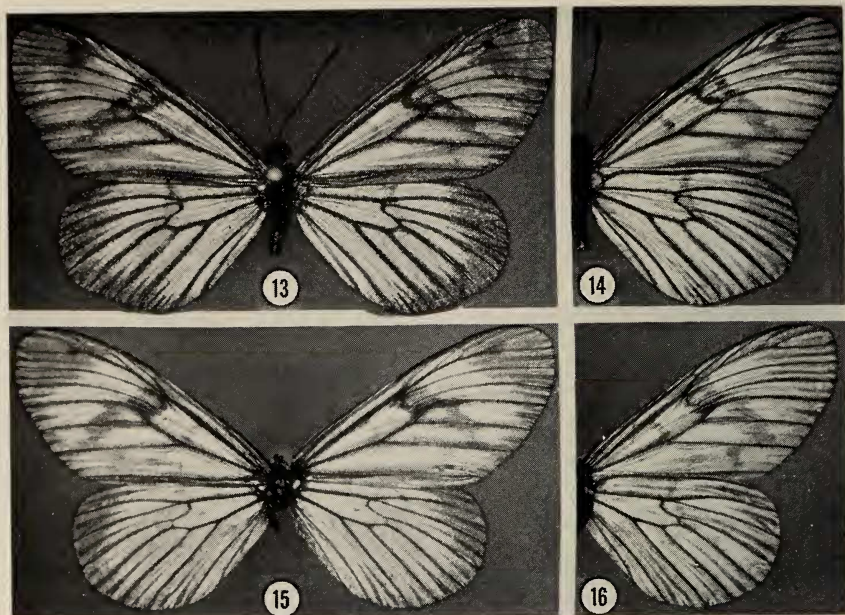
Upper surface of wings very thinly scaled with white, giving a dusky, off-white appearance; forewing smoky at apex and marginally to Cu_2-2A ; veins slightly darkened and interneural spaces with single smoky stripes. **Under surface of wings** similar, but a faint, dark comma-shaped marking lies from M_2-Cu_1 to Cu_1-Cu_2 of the forewing and numerous long, dark hairs lie on the veins, especially of the hindwing. ♂ **genitalia** as illustrated. **Forewing lengths** of the ♂ examples examined range from 21.5 to 24.5 mm.

Female. Similar to ♂, but paler, especially the forewing smoky markings above and below. ♀ **genitalia** as illustrated, generally characterized by having the sterigma more sculptured than in related species. **Lengths of forewings** of ♀ specimens at hand range from 25 to 30.5 mm.

Types and specimens examined. We have examined 15 specimens, seven males and eight females, from the following localities: EL SALVADOR: Anteos, 1 ♂ (HOLOTYPE, USNM), 1 ♂ (possible PARATYPE, CM). GUATEMALA: Tiquisate, 28.vi.1947, 1 ♀ (AMNH). MEXICO: CHIAPAS: Mapastepec, various dates, 1939-1959, 2 ♂ 5 ♀ (AME), 3 ♂ 1 ♀ (AMNH); San Jeronimo, 600 m., 17.vii.1975, 1 ♀ (E. C. Welling M.).

The records from Mexico and Guatemala are apparently the first for either country. The present insect has been masquerading in Mexican collections for years as *A. lapitha* (Staudinger), a species that is abundantly distinct.

Not only have workers on Mexican butterflies been confused on the identity of *calderoni*, but also those in other parts of Central America. The fact that Schaus' (1920) description appeared in an entomologically obscure journal has resulted in the paper never being cited previously by workers on *Actinote*. Were the "Fifty-Year Rule" still in effect in



Figs. 13-16. *Actinote lapitha* (Staudinger). 13-14, ♂, upper (13) and under (14) surfaces; MEXICO: CHIAPAS: Tierra Blanca, Mpio. La Trinitaria, 1500 m. (E. C. Welling M. collection). 15-16, ♀, upper (15) and under (16) surfaces; no locality data (AMNH collection).

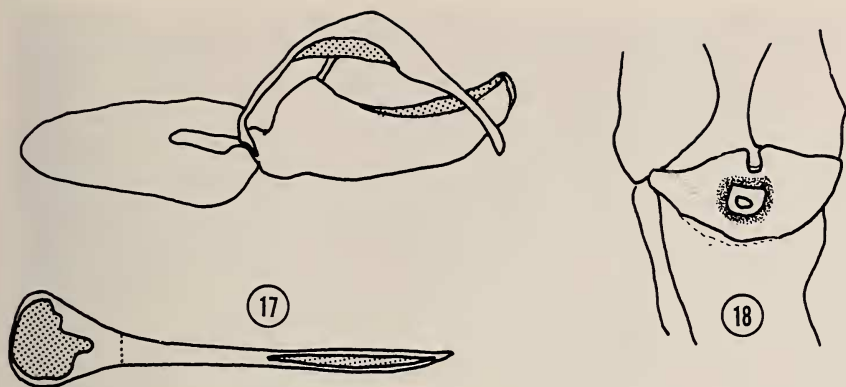
the *International Code of Zoological Nomenclature*, the name *calderoni* could be ignored with impunity, but happily this rule was repealed a few years ago, so we must return to the oldest name. Franz and Schröder (1954) had obviously not seen the Schaus description, but their excellent figure of the type of *A. lapitha zilchi* is referable to specimens of *calderoni* that we have seen (including the Holotype), and since the two taxa were described from within 100 km. of one another, it is evident that they represent the same species.

Actinote lapitha (Staudinger), 1888

Figs. 13-18

Acraca lapitha Staudinger, 1888: 82 (TL—"Chiriqui").

Male. Head, thorax and abdomen clothed with black dorsal hairs; head, palpi and most of thorax also clothed with black ventral hairs; small patch of tawny scales on meso- and metathoracic preepisterna and an additional such patch on metathoracic epimeron; abdomen clothed with admixed fuscous, tawny and buff scales; pleural line tawny and buff only. Antennae and legs black. Ground color of **forewing above** translucent and tawny with margins outlined in dull gray-brown, especially at apex; prominent gray-brown transverse marking from end cell to Cu_2-2A , interspersed with



Figs. 17-18. *Actinote lapitha* (Staudinger). 17, ♂ genitalia; MEXICO: CHI-APAS: Tierra Blanca, Mpio. La Trinitaria; preparation M-3416 (Jacqueline Y. Miller). 18, ♀ sterigma; no data; preparation M-1657 (Jacqueline Y. Miller).

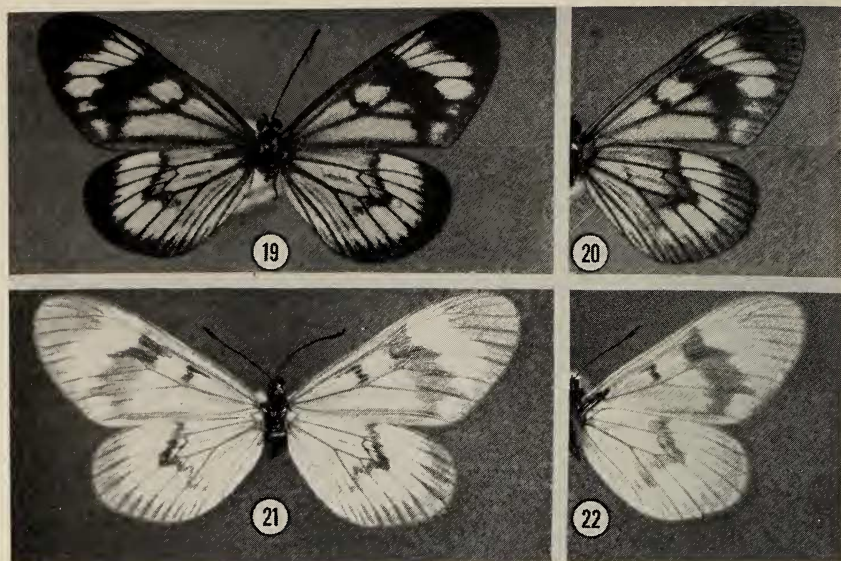
tawny scaling from end cell to M_3 -Cu₁; veins and interneural striping prominent, gray-brown. **Hindwing above** also translucent tawny, dull gray-brown at costa and along margin; veins heavily darkened with gray-brown and interneural markings of same color short and heavy. **Forewing below** similar to upper surface, but margins and apex not so dark and with an additional dull gray-brown bar across middle of cell. **Hindwing below** as above with a faint gray-brown cell end marking from costa to base of M_3 and more prominent veinal and interneural blackish-brown striping. Fringes of both wings blackish on both surfaces. ♂ **genitalia** as illustrated. **Lengths of forewings** of the three ♂ specimens examined range from 22.8 to 23.6 mm.

Female: Similar to ♂, but thorax sparsely clothed with tawny scales, markings of all wings paler, but extra-discal band of forewing more prominent and base of cell of same wing somewhat overscaled with fulvous. ♀ **genitalia** as illustrated; sterigma somewhat heavier than that of the next species and not quite so ornamented as in *calderoni*. **Lengths of forewings** of the two ♀ examples before us 20.2 and 23.1 mm.

Types and specimens examined. We have seen two females and three males of this insect. PANAMA: Jicaron Island, 14-15.i.1902, 1 ♂ (BMNH). COSTA RICA: Puerto Golfito, 4.vii.1965, 1 ♂ (Gordon B. Small, Jr. collection). MEXICO: CHI-APAS: Tierra Blanca, Mpio. La Trinitaria, 1500 m., 15.ix.1972, 1 ♂ (E. C. Welling M.) No Data, 2 ♀ (AMNH).

Evidently the Costa Rican record is a new, but not unexpected one. Hoffmann (1940: 672) lists *lapitha* from "*Tierra caliente de la costa del Pacifico de Chiapas*," no true specimens of that species are in the Hoffmann collection in the AMNH. All of the specimens in Hoffmann's material were *calderoni*, and one of these bore a determination label in Hoffmann's hand of "*Actinote lapitha* Staudinger." Since Hoffmann obviously confused *lapitha* with *calderoni*, we feel that Mr. Welling's specimen of the former is the first authentic record from Mexico.

A. lapitha was described from the Chiriqui region of Panama, but the type specimen is apparently no longer extant, perhaps having been



Figs. 19–22. *Actinote subhyalina* (Staudinger). 19–20, ♂, upper (19) and under (20) surfaces; PERU: Rio Cachiyacu, Iquitos (BMNH). 21–22, Lectotype ♀ (see designation in text), upper (21) and under (22) surfaces; PERU: Yurimaguas (ZMHU).

destroyed during World War II (H. J. Hannemann, *pers. comm.*). We have been unable to locate an authentic Chiriqui specimen in more recent collections; hence, we do not designate a Lectotype here.

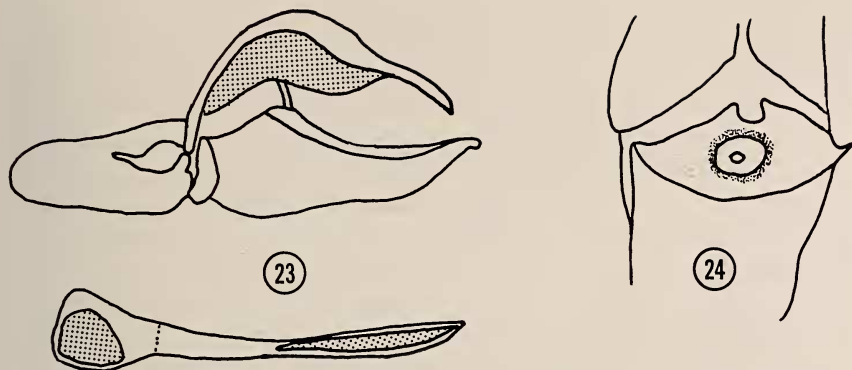
Actinote subhyalina (Staudinger), 1888

Figs. 19–24

Acraea subhyalina Staudinger, 1888: 81; pl. 32 (TL—Yurimaguas, Peru).

Description. Sexes similar: **Head, thorax** and **abdomen** above and below blackish-brown clothed with fuscous to buff scales. Palpi blackish-brown; legs brown and antennae dull reddish-brown. **Forewing above** buff, translucent and laved with fulvous toward base (darkest in ♂); apex and margin dull brown; veins darkened; transverse markings: a jagged blackish-brown one across cell about $\frac{3}{4}$ distance from base to end and a second one from costa across end cell to anal margin (not prominent below Cu_1 in ♂). **Hindwing above** buff, translucent, with darker veins; margin outlined in dull brown; interneural striping in anal region; prominent dark brown bar from costa to Cu_1 - Cu_2 and a dull brown mark across distal end of cell. **Under surface of wings** as above, but dull brown markings slightly overscaled with buff, hindwing distal band more diffuse and an additional dull brown stripe in hindwing cell $Sc+R_1$ - Rs . **Lengths of forewings** of all specimens examined ranged from 20 to 22 mm. **Genitalia** of ♂ and ♀ as illustrated.

Specimens examined. We have been able to examine only a single ♂ and six ♀ specimens. PERU: Rio Cachiyacu, Iquitos, [18]93, Stuart, 1♂ 3♀ (BMNH); Yurimaguas, 1♀ (ZMHU); No data, 2♀ (CM).



Figs. 23–24. *Actinote subhyalina* (Staudinger). 23, ♂ genitalia; PERU: Rio Cachiyacu, Iquitos; preparation M-3403 (Jacqueline Y. Miller). 24, ♀ genitalia of Lectotype; PERU: Yurimaguas; preparation M-3411 (Jacqueline Y. Miller).

Staudinger (1886: 81) described *A. subhyalina* from 12 ♀ specimens taken at Yurimaguas. Certainly the figured ♀ from Berlin was one of Staudinger's syntypes, and the two specimens from CM may have been, but in the case of the latter two specimens this cannot be ascertained with precision. One of the CM specimens bears the label "*Acraea subhyalina*/ from Dr. O. Staudinger/1885," a date that was three years before the description; the second specimen bears a number (Staudinger's?) only, "386." The specimen received from the ZMHU is definitely from the type locality, was in the Staudinger collection and has been labelled as "Origen" by Staudinger or someone subsequent to him. It is the logical candidate for designation as the Lectotype of the name, and we have so labelled it, affixing a red, partially printed, partially handwritten (*italics*) label to it: "Lectotype/ *Acraea subhyalina*/ Staudinger, 1888/ designated by Jacqueline Y. Miller/ & Lee D. Miller, 1977."

DISCUSSION

The impetus for this project was a series of seven specimens in the Allyn Museum collection from Mapastepec, Chiapas, Mexico. Examination of these specimens revealed that while they were closely related to *A. lapitha* (the name associated with them), they were abundantly distinct.

Letters for additional specimens brought two from the AMNH that were in agreement with the original description of *lapitha* (but without data) and five more of the odd one, four of which were from the

Hoffmann collection, taken by Dr. Escalante. A later trip to CM yielded one more specimen and the first clue to the identity of the Mexican material that we had. The additional label on the CM specimen stated that it was "*Actinote calderoni* Schaus," but at the time we were unable to find the original description or any reference to it, and we still assumed that the name might have been a manuscript name only. Re-checking the series and the type collection at the USNM yielded not only the type specimen of *calderoni*, but also finally the reference to the original description of this elusive name.

The confusion did not end there, though. The two true *lapitha* from the AMNH had a fulvous basal flush on the forewing, thus resembling *subhyalina*. This led us to wonder if the specimen figured by Staudinger (1888) was *subhyalina* or *lapitha*. Letters to the BMNH and the ZMHU brought additional specimens of Staudinger's insects and some very helpful information.

All three species are rare in collections, especially the males. Since we encountered such difficulty in making determinations in the *thalia* group, we present the following key to aid other workers to the species treated here.

1. Forewing above with dark transverse band at end cell from costa to near anal angle 2.
- 1'. Forewing with no such band; Mexico to El Salvador *calderoni* Schaus.
2. Hindwing above with prominent dark discal markings at end of cell; Peru *subhyalina* (Staudinger).
- 2'. Hindwing above without prominent marking at end cell; Mexico to Panama *lapitha* (Staudinger).

Essentially the key characters for the separation of the species in this complex are the dark bars across the cells of both wings. *A. subhyalina* shows these bars on the upper surfaces of both wings, *A. lapitha* has only the one on the forewing and *A. calderoni* has neither. Seemingly the orange flush at the base of the upper forewing should be diagnostic, but whereas it is prominent in most *subhyalina*, it also appears in some female *lapitha*, hence it is diagnostic of neither.

The male genitalia (Figs. 11, 17, 23) are similar, but subtly different, in all three species. The valvae are elongated and slightly curved dorsad in *calderoni*, whereas they are squarecut posteriad in both *lapitha* and *subhyalina*. The saccus of *subhyalina* is much more elongate than is that of either of the other two species.

Most of the differences between females of these species lie in the sterigmal region. The posterior margin of the lamella postvaginalis is U-shaped and narrow in *lapitha*, U-shaped and expanded in *subhyalina* and even more enlarged and W-shaped in *calderoni*. The entire opening

of the ostium bursae is darkly sclerotized in a narrow ring in *lapitha*, a somewhat broader darkly sclerotized ring in *subhyalina* but only darkly sclerotized in four separate areas around the opening in *calderoni*, but the area around the ostium itself is lightly sclerotized. The genital capsule is larger in *calderoni* than in the other species.

The tarsi, as is true of all members of the *thalia* group, are asymmetrical and comparable one with another.

Geographically *A. subhyalina* can be immediately separated from *lapitha* and *calderoni*, none of the three species being found in Colombia or Ecuador, as far as we know. It would not be surprising to see *subhyalina* from at least the latter country, and there might be sympatry between *subhyalina* and *lapitha* in Colombia. *A. lapitha*, as recorded here, has a much more extensive range than previously believed, and *calderoni* is not restricted to El Salvador. Either of these species, or both, may well be found in Honduras and Nicaragua. We hope that this paper will encourage others to try to fill in the distributional blanks for this interesting group.

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Mr. Field and Dr. J. F. G. Clarke of the USNM were instrumental in obtaining a copy of the Schaus paper for us. We also thank Mr. S. R. Steinhauser for pointing out the Franz and Schröder paper to us and to Mr. H. W. Dybas of the Field Museum for obtaining a copy of it for our use.

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LITERATURE CITED

- FRANZ, E. & H. SCHRÖDER. 1954. Tagfalter (Lep. Rhopalocera) aus El Salvador. Senckenbergische Biol. 35: 75-87; figs.

- HOFFMANN, C. C. 1940. Catalogo sistematico y zoogeografica de los Lepidopteros mexicanos. 1a. Parte. Papilionoidea. An. Inst. Biol. 11: 639-739.
- JORDAN, K. 1924. Acraeidae. In Seitz, A., Macrolepidoptera of the World 5: 358-374.
- DE LA MAZA R., R. & J. DE LA MAZA E. 1975. Adiciones al Catalogo de Lepidopteros mexicanos. Rev. Soc. Mexicana Lepid. 1: 62-63; figs.
- SCHAUS, W. 1920. Descriptions of two new species of butterflies from tropical America. J. Washington Acad. Sci. 10: 434-435.
- STAUDINGER, O. 1888. In Staudinger, O. and E. Schatz, Exot. Schmett. (1): 81-82; Pl. 32.